

Water & Sewerage Services Price Control 2015-21

Final Determination - Annex P
Opex Special Factor Report
December 2014



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1.0 Introduction

1.1. Purpose

- 1.1.1 As part of the Price Control process (PC15), the Utility Regulator (UR) has the responsibility of setting efficiency targets. These targets are generated based on the following:
- a) The efficiency gap between NI Water and the frontier companies;
 - b) The rate of catch-up which is deemed achievable; and
 - c) On-going efficiency improvements expected of benchmark performers.
- 1.1.2 The efficiency gap is primarily calculated using the PR09 Ofwat opex efficiency models, with some amendments. Targets are then set accordingly in order to incentivise NI Water to narrow this gap.
- 1.1.3 Unfortunately, the regressions will never be able to account for all the different factors that influence costs. Omitting variables can skew results. As a result, cost differentials can be viewed wrongly as differences in efficiency rather than operating environment disparities.
- 1.1.4 In order to correct for this, companies are given the opportunity to submit special factor claims. A special factor is a variable outside of management control, which results in either higher or lower costs than comparators.
- 1.1.5 In order to be awarded a special factor, NI Water must adequately demonstrate:
1. *What is different about the circumstances that cause materially higher costs (“material” claims have previously been agreed by company and Regulator as those individual claims which amount to greater than 1% of total service modelled opex)?*
 2. *Why do these circumstances lead to higher costs?*
 3. *What is the net impact of these costs on prices over and above that which would be incurred without these factors? What has been done to manage the additional costs arising from the different circumstances and to limit their impact?*
 4. *Are there any other different circumstances that reduce the company’s costs relative to the industry norms? If so, have these been quantified and offset against the upward cost pressures?*
- 1.1.6 As part of this price control, NI Water has submitted a revised set of special factors. These include previously submitted claims and a couple of new additions.
- 1.1.7 The purpose of this report is to inform stakeholders of the UR’s view on these issues and the subsequent allowance.

1.2. Summary of findings

- 1.2.1 Special factors are circumstances beyond management control that result in materially different costs to one company but not others. NI Water has raised seven such issues. These consist of the following:
1. **Rurality** – Extra cost incurred on the sewer network because of having a dispersed population. This consists of higher travel costs, more small treatment works and additional wastewater pumping stations;
 2. **Sludge disposal** – NI Water has a legal obligation to transport sludge to PPP operators for incineration. This differs from England and Wales (E&W) companies who have the flexibility to choose their disposal method;
 3. **Electricity prices** – The company has argued for a special factor due to higher power prices in Northern Ireland. NI Water cited the lack of supplier competition locally compared to GB, dependence on gas and lack of indigenous fuels and regulated charges and tariff structures as some of the reasons behind the difference;
 4. **Regional wages** - The company provided an assessment of the advantage they gain from operating in a low wage economy. This manifests itself in a negative special factor;
 5. **NDPB status** – Due to a lack of domestic charging, NI Water is classified as a non-departmental public body. NI Water provided evidence of certain costs other utilities would not have to face e.g. procurement rules, public sector reporting, freedom of information compliance etc;
 6. **Sewerage funding** – NI Water has argued that the legacy of under-investment in small diameter sewers over the last 15-20 years has resulted in a poorer performing network. Therefore, the company now has to incur higher opex to compensate for this impact; and
 7. **Wastewater treatment** – NI Water made an additional special factor claim as part of its consultation response. This focused on extra costs incurred at sewage treatment works as a result of specialist technology.
- 1.2.2 NI Water has not made a claim for the water distribution network as in previous price controls. The adoption of a new and better model for this cost area has allayed the need to correct for the poor explanatory power of the previous model.
- 1.2.3 Each of the special factor claims are discussed in their individual sections. A summary of the amounts claimed and the UR allowance is provided in the table below.

Table 1.1 – Special factors – claimed versus allowed¹

Special Factor Claim	NI Water Claimed	UR Allowed
Rural Network (Sewage)	£4.02m	£2.81m
Sludge Disposal	£0.69m	£0.00m
Electricity Prices	£5.30m	£4.73m
Regional Wages	-£1.20m	-£2.02m
NDPB Status	£1.03m	£0.00m
Sewerage Network Under-Investment	£1.09m	£0.00m
Wastewater Treatment	£1.87m	£1.26m
Total	£12.80m	£6.78m

Figures may not sum due to rounding

¹ All financial figures in this report are given in 2012-13 prices unless otherwise stated.

2.0 Rurality

2.1. Basis of claim

- 2.1.1 When comparing against England and Wales, it can be seen that Northern Ireland has a dispersed and rural population. Because of these demographic and geographic features, NI Water has a different operating environment to most of its comparators.
- 2.1.2 The company has argued that the rural locality results in unavoidable extra cost. In the sewer network, this manifests itself in three ways:
- 1) Higher fuel, labour and vehicle costs associated with longer journeys;
 - 2) Increased fixed costs for extra sewage treatment works needed to serve small communities; and
 - 3) Added fixed costs due to more numerous wastewater pumping stations.
- 2.1.3 Whilst connection density is included in the sewer network model, NI Water are still of the opinion that a special factor exists. The company argues that the current regression will disadvantage them unfairly. This conclusion is based on the view that a longer sewer network reduces predicted costs.
- 2.1.4 In order to adjust for this, the company has looked at individual cost elements affected on a bottom-up basis.

2.2. Calculation of claim – rural travel

- 2.2.1 This special factor is based on the premise that NI Water staff must travel further to serve a rural network. Extra travel means more fuel, vehicle maintenance and labour costs.
- 2.2.2 As England and Wales companies do not publish such in-depth detail, NI Water has made some internal comparisons. These show that the travel time per property is much longer in rural areas.
- 2.2.3 On the strength of this detail, the company selected areas that it considered similar to an average company. It then estimated what travel cost might be if all the areas were akin to this proxy.
- 2.2.4 As its proxy area, NI Water has chosen the Belfast, Lisburn and Derry regions. A slightly larger area including Portadown has been chosen for mechanical and electrical (M&E) operators.
- 2.2.5 The extra travel in the rural areas and the impact on labour costs is summarised below:

Table 2.1 – Summary of excess labour time

		Operational Areas	M&E Field Manager Areas
A	Total net driving time (000 hrs)	55.37	40.88
B	Connected properties (000's)	673.17	673.17
C	Travel time per property – all areas (hrs/prop)	0.082	0.061
D	Travel time per property – proxy areas	0.033	0.044
E	Derived travel time based on proxy (000 hrs)	22.11	29.72
F	Difference – actual/derived (A – E) (000 hrs)	33.26	11.16
G	Labour rate (£/hr)	22.29	22.63
H	Cost impact (F * G) (£000's)	£741	£253
I	Total cost impact (£m)	£0.99m	

Figures may not sum due to rounding

- 2.2.6 NI Water repeated this process for vehicle repairs and fuel costs. This resulted in a claim of £1.9m for travel expenses.

Table 2.2 – Summary of travel cost claims

	Operational Areas	M&E Field Manager Areas
Travel impact on labour (£000's)	£741	£253
Travel impact on vehicle repairs (£000's)	£509	£106
Travel impact on fuel (£000's)	£251	£70
Total travel costs special factor (£000's)	£1,502	£428
Total travel costs special factor (£m)	£1.93m	

Figures may not sum due to rounding

2.3. UR allowance – rural travel

- 2.3.1 On a 'bottom-up' basis, the detail provided by NI Water would support a special factor. The Reporter has audited this data and found it to be robust and complete.
- 2.3.2 There is no debate that NI Water operates a rural network. This is borne out by connection density and census figures. The question is whether this factor is already included in the sewer network regression. This shall be considered later.
- 2.3.3 NI Water area data do show unit cost differentials. This indicates that they will have to incur extra travel related costs. However, it is unclear if the chosen proxy area would represent a typical company.

- 2.3.4 For operational field managers, the chosen proxy closely aligns with the Belfast, Derry and Lisburn council areas. This is more urban than the M&E area, a fact that appears to be reflected in the respective unit costs.
- 2.3.5 In the draft determination, simple population figures were used by the UR to establish density. NI Water challenged this on the reasonable basis that sewage property figures are a better basis for comparison.

Table 2.3 – Sewage property density comparisons

Area	Connected Sewage Properties (000's)	Land Area (Square Km)	Density (Property/sq Km)
Anglian	2,649	27,476	96
Dwr Cymru	1,403	21,338	66
United Utilities	3,210	14,355	224
Northumbrian	1,229	9,236	133
Severn Trent	3,910	21,436	182
South West	701	10,764	65
Southern	1,888	10,551	179
Thames	5,799	13,303	436
Wessex	1,181	9,984	118
Yorkshire	2,218	13,531	164
E&W Total	24,187	151,974	159
NI Water Proxy Area	303	1,315	230
NI Water Total	673	13,577	50
UR Proxy Area	327	2,694	121

Source: PR09 August submission and NI Water data

- 2.3.6 The company highlighted the fact that connection density is three times greater in England and Wales. This is accepted by the UR. However, the proxy area of Belfast, Lisburn and Derry gives a connection density of 230 properties per square kilometre. This is higher than the industry average.
- 2.3.7 In light of such findings, the UR has retained the approach used at the draft determination. This involves choosing a proxy area which is more representative of comparators.
- 2.3.8 To correct for this issue, the UR has undertaken the same calculations as NI Water. The only difference is that the Magherafelt district (Limavady and Magherafelt councils) has been included in the proxy area. This gives a density figure much closer to the England and Wales average and the frontier company.
- 2.3.9 The results are as follows:

Table 2.4 – Summary of excess labour time – UR calculations

		Operational Areas	M&E Field Manager Areas
A	Total net driving time (000 hrs)	55.37	40.87
B	Connected properties (000's)	673.17	673.17
C	Travel time per property – all areas (hrs/prop)	0.082	0.061
D	Travel time per property – proxy areas	0.044	0.044
E	Derived travel time based on proxy (000 hrs)	29.43	29.73
F	Difference – actual/derived (A – E) (000 hrs)	25.94	11.14
G	Labour rate (£/hr)	22.29	22.63
H	Cost impact (F * G) (£000's)	£578	£252
I	Total cost impact (£m)	£0.83m	

Figures may not sum due to rounding

Table 2.5 – Summary of vehicle repair costs – UR calculations

		Operational Areas	M&E Field Manager Areas
A	Total vehicle repair costs (£000's)	836.29	234.73
B	Connected properties (000's)	673.17	673.17
C	Cost per property – all areas (£/prop) (A/B)	1.242	0.349
D	Cost per property – proxy areas (£/prop)	0.658	0.192
E	Derived cost based on proxy (£000's) (B * D)	443.15	129.21
F	Cost impact (£000's) (A - E)	393	106
G	Total cost impact (£m)	£0.50m	

Figures may not sum due to rounding

Table 2.6 – Summary of excess fuel costs – UR calculations

		Operational Areas	M&E Field Manager Areas
A	Total vehicle fuel costs (£000's)	412.77	104.62
B	Connected properties (000's)	673.17	673.17
C	Cost per property – all areas (£/prop) (A/B)	0.613	0.155
D	Cost per property – proxy areas (£/prop)	0.325	0.086
E	Derived cost based on proxy (£000's) (B * D)	218.73	57.59
F	Cost impact (£000's) (A - E)	194	47
G	Total cost impact (£m)	£0.24m	

- 2.3.10 Adopting the NI Water approach but adjusting the proxy area gives a bottom-up special factor of £1.57m for rural travel.

2.4. Calculation of claim – sewage treatment works

- 2.4.1 The second element of the rural claim is the impact on treatment works. NI Water argues that serving a dispersed populace results in a greater number of sewage works, with a smaller average load.
- 2.4.2 Whilst the cost of treating sewage may not necessarily be different, this situation does impose extra fixed costs for the additional works. NI Water supports this claim with detail showing the differences in sewage loads.

Table 2.7 – Comparison of WWTW loadings

Area	Number of Works		Load (kg/BOD5/day)		Load per works		Hypothetical Works
	NI Water	E&W	NI Water	E&W	NI Water	E&W	NI Water
Size Band 1	785	2,988	1,973	15,151	2.51	5.07	389
Size Band 2	59	680	1,352	15,477	22.92	22.76	60
Size Band 3	111	1,140	7,200	74,075	64.86	64.98	111
Size Band 4	53	857	13,327	248,589	251.45	290.07	46
Size Band 5	13	312	13,122	308,607	1,009.38	989.13	13
Total	1,021	5,977	36,974	661,899			619

Figures may not sum due to rounding

- 2.4.3 The table illustrates the average load per works. Across most of the bands, NI Water is similar to the average. The exception is small works (<250 p.e.) where NI Water has a less than 50% loading.
- 2.4.4 The basis of the special factor is that NI Water must incur fixed costs in order to operate all these small works. To calculate the special factor, the company has estimated its hypothetical number of works using England and Wales average loadings.
- 2.4.5 The company has then made an estimate of fixed costs by size band in order to establish the special factor.
- 2.4.6 To do this, the company has calculated the total cost per works. Fixed costs are then calculated by assuming that the variable costs are the same in adjacent size bands.
- 2.4.7 This allows the company to establish a cost per load figure. The remaining cost is then assumed to be the fixed element.
- 2.4.8 Calculation of the special factor is given below.

Table 2.8 – Cost impact calculation

Area	NI Water Works	Hypothetical Works	Change in works	Fixed Cost per Works (£)	Special Factor (£)
Size Band 1	785	389	396	225	88,919
Size Band 2	59	60	-1	3,125	-1,615
Size Band 3	111	111	0	8,079	1,557
Size Band 4	53	46	7	26,417	186,388
Size Band 5	13	13	0	26,417	-7,034
Total	1,021	619	402		268,215

Figures may not sum due to rounding

- 2.4.9 The special factor is calculated as the fixed costs multiplied by the change in works. The company has calculated a cost impact in each size band, even though there is sometimes no change in the works number. This is because the hypothetical works being estimated is not a whole number.

2.5. UR allowance – rural treatment works

- 2.5.1 NI Water has a greater proportion of very small (Size Band 1) works. It appears this is an unavoidable result of the rural network it operates. The Reporter has confirmed that there is limited scope to consolidate the works further, indicating that a special factor exists.
- 2.5.2 In order to make comparison with the latest data, the UR has used AIR13 and the PR14 August submission figures from Ofwat companies. The results support the previous findings of NI Water.

Table 2.9 – Comparison of WWTW loadings

Area	Number of Works		Load (kg/BOD5/day)		Load per works		Difference
	NI Water	E&W	NI Water	E&W	NI Water	E&W	(%)
Size Band 1	782	2,670	1,979	12,977	2.53	4.86	-48%
Size Band 2	58	625	1,325	14,118	22.84	22.59	1%
Size Band 3	106	1,108	6,685	72,843	63.06	65.74	-4%
Size Band 4	55	844	13,841	247,354	251.66	293.07	-14%
Size Band 5	14	316	14,388	315,793	1,027.73	999.35	3%
Total	1,015	5,563	38,218	663,086			

Figures may not sum due to rounding

- 2.5.3 What the table reveals is that only Band 1 works have a materially different load size than England and Wales. The UR therefore sees no reason to make cost adjustments for the other bandings.

- 2.5.4 Within their consultation response to our draft determination, NI Water accepted the rationale of the UR approach. They did however query the exclusion of Size Band 4 treatment works. The company considers the loading difference for these works to be a material issue.
- 2.5.5 The UR has rejected this on the basis that all companies have variable loadings which diverge to some extent from the average. Whilst the Band 1 difference of 48% appears exceptional, the Band 4 differential (14%) does not.
- 2.5.6 Furthermore, it is not clear if the Band 4 sewage load difference is a function of a rural network. This is borne out by Thames. They have a lower than average load per works for size bands 2 - 5, yet are the most densely populated company.
- 2.5.7 Other factors may therefore explain the difference in loads across bands. Where this uncertainty exists, it would not be appropriate to allocate a special factor to the other bandings.
- 2.5.8 Calculation of the Band 1 WWTW special factor is given below.

Table 2.10 – Rural WWTW special factor

		Calculation	WWTW Special Factor
A	NI Water works (Band 1)		782
B	NI Water load (Band 1)		1,979
C	E&W average load		4.86
D	Hypothetical works	(B / C)	408
E	Change in works	(A – D)	374
F	Fixed Cost (£)		£225
G	Special Factor (£)	(E * F)	£84,150
H	Special Factor (£m)		£0.084m

Figures may not sum due to rounding

- 2.5.9 The UR does not necessarily agree with the approach adopted by the company to calculate fixed costs. It is based on the change in variable costs at a larger treatment works, which will obviously be less expensive.
- 2.5.10 The result is an overestimate of the size of the fixed cost element. However, in the absence of any better detail the fixed cost element is accepted. The result is a special factor of £0.08m.

2.6. Calculation of claim – pumping stations

- 2.6.1 Many of the same arguments are submitted for wastewater pumping stations (WWPS) as those for treatment works. A rural network requires many small stations to deal with low volumes. This leads to the company incurring high fixed costs, which cannot be avoided.

- 2.6.2 In order to support the argument, the company provided detail showing the difference in pumping stations per sewage volume and per connected population. Both measures indicate a higher number of stations in Northern Ireland compared to the England and Wales average.
- 2.6.3 From this data, NI Water calculated the hypothetical number of pumping stations. The difference is then multiplied by a fixed cost of £2,980 per station.
- 2.6.4 The fixed cost was based on a regression of WWPS cost against the population equivalent (p.e.) served. The intercept was deemed the fixed cost. This value is also support by an UKWIR study that estimated the maintenance costs of a small pumping station.
- 2.6.5 Calculations for the company claim are below.

Table 2.11 – Rural WWPS special factor

		Calc	Measure 1: Volume of sewage (MI/d)	Measure 2: Connected Population (000's)
A	NI Water WWPS		1,256	1,256
B	NI Water WWPS per measure		3.93	0.86
C	E&W aver WWPS per measure		2.12	0.40
D	Hypothetical WWPS		679	575
E	Change in works	(A – D)	577	681
F	Fixed Cost (£)		£2,980	£2,980
G	Special Factor (£000's)	(E * F)	£1,716	£2,025
H	Special Factor (£m)	Average	£1.87m	

Figures may not sum due to rounding

2.7. UR allowance – sewage pumping stations

- 2.7.1 The Reporter has confirmed the low volume per pumping station is a result of the rural network. He has further stated that NI Water management has relatively little scope to change this. As a result, the UR agrees that a special factor exists from a 'bottom-up' perspective.
- 2.7.2 It is clear from the evidence that there is a fairly large divergence between NI Water and the rest of the industry. It would also appear that this is a result of geographic factors.
- 2.7.3 This conclusion is verified by the comparative data. When considering rural companies (such as Anglian, Welsh Water or Wessex), it is evident that they have a higher than average number of pumping stations per property/volume. NI Water is even more of an outlier than these rural comparators.

- 2.7.4 Using the latest available data, the UR has calculated the hypothetical pumping stations given an average network.

Table 2.12 – Rural WWPS hypothetical network

		Calc	Measure 1: Sewage load entering system (000 tonnes BOD/year)	Measure 2: Connected Population (000's)
A	NI Water WWPS		1,256	1,256
B	NI Water sewage load		46.9	
C	NI Water connected population			1,438
D	NI Water WWPS per measure	(A / B or C)	26.78	0.87
E	E&W aver WWPS per measure		14.15	0.35
F	Hypothetical WWPS	(E * B or C)	664	505
G	Change in works	(A - F)	592	751

Figures may not sum due to rounding

- 2.7.5 These methods support NI Water findings and actually predict a slightly higher reduction in pumping stations. However, at this point the UR disagrees with the company approach to fixed costs.
- 2.7.6 The UR is concerned that the regression used to establish fixed costs has a wide variety of pumping stations. This includes stations with a p.e. >25,000. When split using the same size bands as treatment works, we find the following:

Table 2.13 – WWPS data by size band

	NI Water WWPS	Cost (£000's)	% of stations	Cost per WWPS (£/station)
Size Band 1 - (0-249 p.e.)	679	1,776	65.9%	£2,616
Size Band 2 - (250-499 p.e.)	125	481	12.1%	£3,849
Size Band 3 - (500-1,999 p.e.)	152	1,107	14.8%	£7,285
Size Band 4 - (2,000-9,999 p.e.)	56	1,079	5.4%	£19,260
Size Band 5 - (10,000-24,999 p.e.)	14	539	1.4%	£38,514
Size Band 6 - (25,000+p.e.)	4	640	0.4%	£160,121
Total (size 1-6)	1,030	5,623	100%	£5,459

Figures may not sum due to rounding

- 2.7.7 The vast majority (circa 80%) of pumping stations are in Size Band 1 and 2. Much like wastewater treatment works; the special factor would appear to impact on the small stations. Any change in works would have to be in these bands.

- 2.7.8 The fixed cost methodology adopted by NI Water takes account of all bands. This is not considered appropriate. NI Water's estimate of fixed cost (£2,980) was derived from a regression using all pumping stations. This estimate is greater than the total average cost of a Band 1 station (£2,616).
- 2.7.9 To amend for this, the UR adopted the same regression approach as NI Water, only with small WWPS. However, this did not provide a suitable regression.
- 2.7.10 By way of an alternative, the UR made the conservative assumption that fixed costs are 60% of total pumping station costs. A weighted average (80%:20%) was then adopted between Bands 1 and 2.

Table 2.14 – WWPS fixed cost estimate

	Cost per WWPS (£/station)	Fixed Cost (60%) (£/station)	Weighted Average (£/station)
Size Band 1 - (0-249 p.e.)	£2,616	£1,569	£1,256
Size Band 2 - (250-499 p.e.)	£3,849	£2,310	£462
Weighted average special factor			£1,717

Figures may not sum due to rounding

- 2.7.11 The weighted average of £1,717 was adopted as the fixed cost element of WWPS. This is an approximate figure which should be subject to more evidence and review going forward. The result is the following special factor.

Table 2.15 – Rural WWPS special factor

		Calc	Measure 1: Sewage load entering system (000 tonnes BOD/year)	Measure 2: Connected Population (000's)
A	NI Water WWPS		1,256	1,256
B	Hypothetical WWPS		664	505
C	Change in works	(A - B)	592	751
D	Fixed Costs (£)		£1,717	£1,717
E	Special factor (£000's)	(C * D)	£1,017	£1,290
F	Special Factor (£m)	Average	£1.15m	

Figures may not sum due to rounding

- 2.7.12 NI Water accepted this approach in their consultation response. The overall bottom-up allowance for the rural special factor is £2.81m. This combines an assessment of the extra cost of rural travel, small treatment works and pumping stations.

2.8. Modelling issues

- 2.8.1 The UR has considered the ‘bottom-up’ claims and found them to be robust. An issue still remains as to whether some of these costs are in fact already captured in the sewer network model.
- 2.8.2 The company state that the regression fails to account for its particular situation. NI Water claim the population per sewer explanatory variable introduces a bias, as a long network will result in lower predicted costs.
- 2.8.3 NI Water further raised a number of points in relation to the sewer networks model. Namely:
- The sewer district variable is designed to capture surface water drainage costs, not the impact of a rural network;
 - The model does not have particularly good explanatory powers; and
 - The efficiency gap predicted by this model seems excessive when compared with other business areas.
- 2.8.4 Whilst the Regulator would largely agree with these points, the issue is not clear-cut. The network model actually predicts unit cost (i.e. cost per sewer length).
- 2.8.5 Whilst an increase in sewer length will reduce predicted *unit costs*, this is largely offset when calculating actual predicted costs. This is due to the lower predicted unit cost being multiplied by the longer length of sewer.
- 2.8.6 The model also predicts extra costs for those with a large sewer district to sewer length ratio. The company is correct that the variable was designed to capture drainage costs; however it also acts as a proxy for rurality. How much of these costs it captures is a matter of debate.
- 2.8.7 For the final determination the UR has decided to err on the side of caution. The bottom-up special factor estimates have been accepted as determined above.

3.0 Sludge Disposal

3.1. Basis of claim

3.1.1 NI Water has claimed a special factor for the cost of sludge disposal. The company is contractually obligated to convert wastewater to sludge cake for incineration by a Public Private Partnership (PPP).

3.1.2 This means that, unlike others, NI Water is restricted in its method of disposal. The company claim this legal restriction results in additional opex, which it cannot avoid. The Reporter has further confirmed that,

“Having adopted this thermal destruction strategy it is not practical for NI Water to now change this or apply a different strategy.”

3.1.3 The company therefore believe a special factor to be suitable.

3.2. Calculation of claim

3.2.1 The extent of the special factor is determined by two elements:

- Current NI Water sludge disposal costs; and
- Hypothetical cost of disposal to land if this was an option.

3.2.2 The company has broken down current costs into three functions.

- a) Transport of liquid waste to dewatering centres;
- b) Dewatering costs; and
- c) Transport of sludge cake to incinerator.

3.2.3 NI Water has indicated that the contract stipulates a minimum dry solids content of 22%. This means that sludge must dry before it can be incinerated. It is this element of the disposal cost that the company believe could be avoided if other disposal routes were used.

3.2.4 For instance, if alternates were available, NI Water would use anaerobic digestion to treat sludge before disposal to farmland.

3.2.5 The premise of the argument in favour of anaerobic digestion is that it can be cost neutral. The expense of running the digesters is offset by the energy generated from the process.

3.2.6 Under this scenario, the dewatering costs are avoided. It is assumed there is no further opex associated with disposal to land, barring transport costs.

3.2.7 Calculation of the special factor claim is provided below.

Table 3.1 – Sludge disposal special factor claim

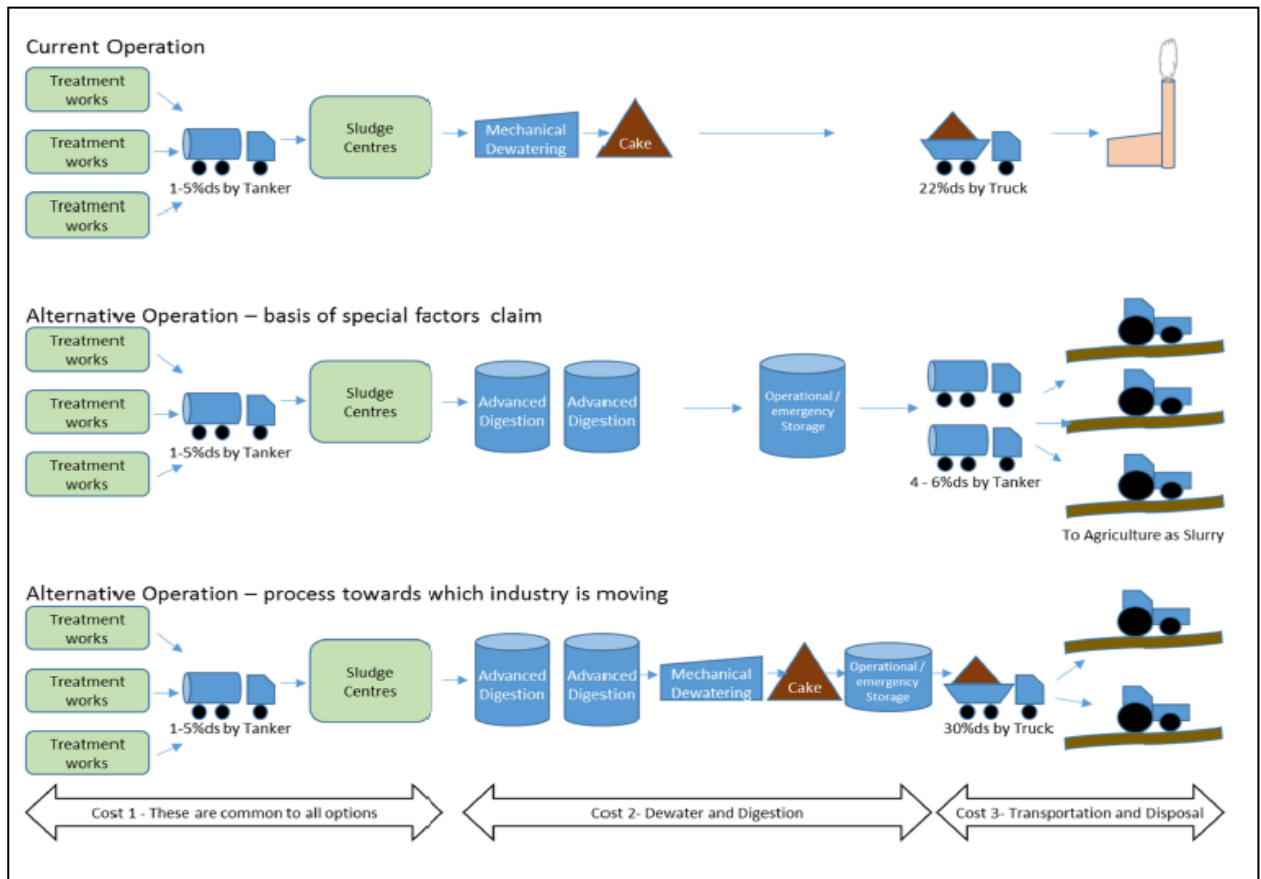
NI Water Actual Cost Categories	Total (£000's)
Transport costs: liquid sludge to dewatering centres	£1,278
Sludge dewatering costs	£1,032
Transport costs: sludge cake to incinerator	£451
Total	£2,761
Hypothetical Cost Categories	Total (£000's)
Transport costs: liquid sludge to digestion centres	£1,278
Sludge digestion costs	£0
Transport costs: digested sludge to land	£820
Total	£2,098
Special Factor (Difference)	£663

Figures may not sum due to rounding

3.3. UR allowance

- 3.3.1 The UR recognises that a difference exists between NI Water and others due to their legal obligations. There is also recognition that sludge incineration is not a strategy that can be easily changed.
- 3.3.2 However, it is unclear if a special factor exists on this occasion. The Reporter looked at the hypothetical scenario described by NI Water. His opinion is that the savings would typically be less than what the company suggests. This is due to:
- a) Any company disposing to land would have to incur extra storage costs when the land bank is not available; and
 - b) It is likely that a company may have to split their disposal strategy between liquid and cake sludge. The decision on this split depends on a variety of factors. It would of course mean incurring dewatering opex, even if disposing to land.
- 3.3.3 The Reporter has helpfully detailed the different processes in the graphic below.

Figure 3.1 – Sludge disposal methods



3.3.4 The Reporter estimates the savings could be less than £0.3m. This falls well below the 1% service level opex materiality threshold. This threshold is set to exclude small claims, as there is always likely to be positive offsetting circumstances that the UR does not know about.


3.3.5 Consequently, the UR has disallowed this special factor claim. NI Water agreed with this decision in their consultation response to our draft determination.

4.0 Electricity Prices

4.1. Basis of claim



- 4.1.1 NI Water has made a claim of £5.3m to account for higher industrial electricity prices in Northern Ireland.
- 4.1.2 It is the company's contention that these costs are unavoidable and outside reasonable management control. This is due to differences in the electricity markets of Northern Ireland and the rest of Britain.
- 4.1.3 The company highlighted a variety of factors, which results in them incurring inflated prices. These include:
- A lack of supplier competition in Northern Ireland compared with GB;
 - The lack of indigenous fossil fuels and dependence on gas resulting in high generation costs;
 - The regulated charges affect on price, which are outside company control; and
 - The limited types of electricity tariffs, which differ from those used in England, Scotland and Wales.
- 4.1.4 Due to these factors, the company is of the opinion that electricity prices will be more expensive than for other water utilities. Since the different procurement environment is outside management control, a special factor is believed to be merited.

4.2. Calculation of claim

- 4.2.1 NI Water has used a couple of different methods to determine the size of the special factor. These include:
- a) A comparison of NI Water's pence per kilowatt-hour (p/kWh) against the average of five England and Wales water utilities unit costs; and
 - b) Use of the UR's Quarterly Transparency Report (QTR) graphs on industrial electricity prices by size band.
- 4.2.2 The company has combined each method to establish an industrial price differential of  p/kWh. This figure is multiplied by NI Water usage in 2012-13 to establish the extent of the disadvantage.
- 4.2.3 Following the previous price control approach, one further adjustment is made. This is an inefficiency correction. Its purpose is to account for the fact that NI Water's electricity usage may not be optimal. The level of this change is derived from the power model regression.

4.2.4 Calculation of the company claim is provided below.

Table 4.1 – Electricity price special factor claim

		Calc	Figures
A	NI Water electricity usage		 kWh
B	Difference in unit cost from E&W		 p/kWh
C	Impact on NI Water	(A * B)	£6.6m
D	Inefficiency assessment		23.9%
E	Special Factor	C / (1 + D)	£5.3m

Figures may not sum due to rounding

4.3. UR allowance







4.3.1 Whilst not necessarily agreeing with all the reasons submitted by NI Water, the UR accepts that an industrial electricity price difference exists. This is borne out by the QTR.

4.3.2 It is further acknowledged that efforts to mitigate this impact have been undertaken. The UR does however believe that inefficiency still exists as more usage reductions are planned for PC15.

4.3.3 In order to establish the price gap, comparison with the five England and Wales companies has been discounted. Whilst the logic is sound, the sample size is quite small to reliably inform the actual difference.

4.3.4 The UR has therefore used figures derived from the QTR. These figures are used in the same way as NI Water. This involves taking the price difference across the different connection types and finding a weighted average disparity particular to NI Water.

Table 4.2 – Electricity price differential (NI versus UK)

Type of connection	MWh	Annual Consumption (MWh)	NI/UK Difference (%)	Number of Sites	% of NI Water Consumption	Weighted Difference (%)
Very Small		0-20	12%	2,018	5%	0.6%
Small		20-499	17%	631	19%	3.3%
Small Medium		500-1999	21%	55	19%	4.0%
Medium		2000-19999	17%	26	32%	5.5%
Large / V. Large		20000-150000	14%	3	25%	3.4%
Total			Difference in ave. price per unit (APPU)			16.8%

Figures may not sum due to rounding


- 4.3.5 The percentage difference figures are derived from data covering 2012-13. The table indicates that a UK water company with the same consumption profile as NI Water would experience average electricity prices 16.8% lower than Northern Ireland.
- 4.3.6 For NI Water, this translates into an APPU difference of  p/kWh. The impact of this on their current level of consumption is £5.4m. To this figure, an inefficiency adjustment must be applied.
- 4.3.7 For PC15 the UR has amended its approach to this step somewhat. Recognition needs to be given to the fact that some of the inefficiency in the power regression will be due to the power price special factor. The result is the following analysis.



Table 4.3 – NI Water power model inefficiency

	Water Power Regression	Calculation	£m (2012-13 prices)
A	NI Water actual power costs (water only)		£14.67m
B	Regression predicted costs		£10.73
C	Electricity price differential impact		£5.44m
D	Proportion of power allocated to water		43.1%
E	Electricity price impact	(C * D)	£2.34m
F	Adjusted actual costs	(A – E)	£12.33m
G	Difference	(F – B)	£1.60m
H	Inefficiency	(G / F)	13.0%

Figures may not sum due to rounding

- 4.3.8 Using this lower inefficiency value gives a special factor allowance as follows.

Table 4.4 – Electricity price special factor allowance

		Calc	Figures
A	NI Water electricity usage		 kWh
B	Difference in unit cost from E&W		 p/kWh
C	Impact on NI Water	(A * B)	£5.44m
D	Inefficiency assessment		13.0%
E	Special Factor	C * (1 - D)	£4.73m

Figures may not sum due to rounding

4.4. Consultation response

- 4.4.1 As part of the consultation response, NI Water queried the decision not to use comparative data from England and Wales companies. Their rationale focused on the fact that:
- a) Using water utility comparisons introduces an industry perspective;
 - b) The sample of five companies represents roughly a quarter of the industry in England and Wales;
 - c) QTR figures fail to take account of particular issues faced by NI Water in terms of power tariff inflexibility; and
 - d) The QTR is compiled in a way which focuses on specific areas which best reflect the electricity system. This may not however give a balanced view of price differentials for NI Water.
- 4.4.2 The UR agrees that more industry specific comparison is desirable. The issue is the problematic nature of obtaining such detail.
- 4.4.3 The size of the sample used by NI Water runs the risk of introducing bias in the figures. The UR does not therefore see this as a good way of correcting imbalances which might arise using QTR figures.
- 4.4.4 It is recognised that the QTR won't exactly reflect the WaSC power costs. It will however give a good indication of the average price difference across regions.
- 4.4.5 Furthermore, the same issues identified for NI Water in terms of tariff inflexibility will likely affect water companies in England and Wales. This suggests that the scale of the price gap remains valid.
- 4.4.6 As NI Water has not sought to establish it has less opportunity to benefit from off-peak tariffs than other water utilities, the current analysis still has merit.
- 4.4.7 Upon reflection of these issues, the approach from the draft determination has been retained at final.

5.0 Regional Wages

5.1. Basis of claim

- 5.1.1 Following a similar approach to PC13, NI Water has made an adjustment for regional wages. This results in a negative special factor due to the advantage NI Water has operating in a low wage region of the UK.
- 5.1.2 The negative special factor adjusts NI Water costs upwards for the purposes of comparisons. The UR considers this appropriate since the company benefits from an advantage due to location rather than management action.

5.2. Calculation of claim

- 5.2.1 In their PC15 Business Plan, the company largely followed the established process used to calculate the negative special factor. This consists of the following:
- Derive wage data from the ASHE² survey. Focus is upon the median hourly wage (excluding overtime) for all full-time employees. This avoids potential anomalies with bonuses, working time patterns or part-time employment;
 - Compare NI wage levels against frontier regions (e.g. Yorkshire and South West);
 - Determine the percentage advantage NI Water will experience; and
 - Apply this percentage to the current wage bill, generating a negative special factor.
- 5.2.2 Using provisional results from the ASHE 2012 survey, the company identify the wage differential as follows.

Table 5.1 – Regional wage disparity

		Process Rule	Figures
A	South West - £ per hour		£10.36
B	Yorkshire and Humber - £ per hour		£10.29
C	Average frontier regions - £ per hour	(A + B) / 2	£10.33
D	Northern Ireland - £ per hour		£10.01
E	Difference (%)	(C - D) / D	3.15%

² Annual Survey of Hours and Earnings.

- 5.2.3 After deriving the difference, NI Water has then applied this to an element of labour costs. Certain items are excluded. These include capitalised salaries, atypical costs and business activity wages.

Table 5.2 – Regional wage special factor claim

		Process Rule	Figures
A	Total labour costs excluding capitalised wages and salaries (£m)		£48.8m
	Less adjustments		
B	Atypical VER/VS cost (£m)		-£3.4m
C	Atypical BI cost (£m)		-£1.0m
D	Business activities (£m)		-£5.8m
E	Staff expenses (£m)		-£1.1m
F	Total adjustments (£m)	(sum of B to E)	-£11.3m
G	Total modelled costs (£m)	(A + F)	£37.5m
H	Regional differential (%)		3.15%
I	Negative special factor (£m)	(G * H)	£1.18m

Figures may not sum due to rounding

- 5.2.4 The result of the process is a claim of £1.2m for the negative special factor. However, the company, in their response to our draft determination, now believe such an approach to be wrong. NI Water detailed some concern with this method due to their status as a public body.

5.3. UR allowance

- 5.3.1 The UR believes that a negative special factor is required. Proper comparison must take account of external factors that both increase and reduce opex. The UR supports the original process adopted by NI Water in their PC15 Business Plan submission, which includes a negative wage claim.
- 5.3.2 To calculate the regional pay difference, the UR has used the latest ASHE 2013 revised data. These numbers correspond with the year in question (2012-13).

Table 5.3 – Regional wage disparity

		Process Rule	Figures
A	South West - £ per hour		£12.06
B	Yorkshire and Humber - £ per hour		£11.91
C	Average frontier regions - £ per hour	(A + B) / 2	£11.99
D	Northern Ireland - £ per hour		£11.46
E	Difference (%)	(C - D) / D	4.58%

- 5.3.3 The findings show a slightly lower disparity than the draft determination. This merely reflects the shift in ASHE figures from provisional to final where wage rates would appear to have converged to a degree.
- 5.3.4 There are numerous methods to compare wage rates but the UR has retained the analysis that is consistent with the PC13 approach.
- 5.3.5 The Reporter queried why the negative factor does not reflect the difference in pay rates between NI and GB at an average level. Ultimately, this is because the efficiency gap is defined by benchmarking to the frontier.
- 5.3.6 Most of the other special factors reflect comparison against the average. However, this is more to do with data restrictions rather than choice.
- 5.3.7 When applying the regional adjustment, the UR makes some different distinctions as to its scope. These include:
- a) Business improvement costs are included, as they are no longer treated as atypical; and
 - b) Business activities are not excluded. Whilst they are removed from the efficiency gap modelling, the UR calculates the total special factor for the business.
- 5.3.8 Making these amendments results in the following special factor allowance.

Table 5.4 – Regional wage special factor allowance

		Process Rule	Figures
A	Total labour costs (£m)		£57.0m
	Less adjustments		
B	Capitalised salaries (£m)		-£9.3m
C	Atypical VER/VS cost (£m)		-£3.4m
D	Sundry items (£m)		-£0.2m
E	Total adjustments (£m)	(sum of B to D)	-£12.9m
F	Total modelled costs (£m)	(A + E)	£44.1m
G	Regional differential (%)		4.58%
H	Negative special factor (£m)	(F * G)	£2.02m

Figures may not sum due to rounding

5.4. Consultation response

- 5.4.1 In their consultation response, NI Water revised their view of the regional wage claim. The company now believe such an approach to be flawed as:
- a) It ignores the fact that NI Water is a public sector body;
 - b) The majority of staff moved to NI Water under TUPE arrangements resulting in a public sector salary structure;
 - c) NI Water has been unable to make significant changes to terms and conditions;
 - d) NI Water is bound by the civil service pay remit; and
 - e) Current costs are more reflective of other public sector bodies.
- 5.4.2 The company is of the opinion that a better comparison would be between NI public sector pay and private sector pay in the UK.
- 5.4.3 Rather than benefitting from low regional wages, the company now believes they face a substantial disadvantage. Using ASHE data for public and private sector earnings, the company estimate an uplift of 16% in their salary cost base. This would translate into a significant positive special factor.
- 5.4.4 In relation to this comparison, the Regulator would make the following points:
- a) Whilst recognising the public sector history, the company has been operating as an independent body since 2007. NI Water has been provided significant transformation funding to make appropriate changes to business practices. Therefore, a public sector comparison would not be appropriate;

- b) It is accepted that it takes time to migrate to private sector practices. However, NI Water has completed pay and grading reviews and has been employing staff on NI Water's own terms and conditions for some time;
 - c) The limits imposed by the civil service pay remit only restrict the company with regard to pay uplifts for existing staff. This does not restrict normalising to private sector comparators;
 - d) Data submitted by NI Water during the PC10 consultation indicated that, *"the average wage for the E&W water and sewerage companies was 2.7% higher than the average wage for NI Water."*³ Whilst recognising changes in the interim and potential flaws in the process, this does not suggest that NI Water is operating at a disadvantage; and
 - e) Evidence on an industry basis would suggest that wage rate differences may actually be much greater than the final allowance. UK pay rates for the water supply and sewage industry (£12.79 per hour) are in fact 13% higher than the same industry in Northern Ireland (£11.29 per hour). This indicates a much larger advantage than the final determination position on the regional wage special factor.
- 5.4.5 Given these factors, the UR believes NI Water is advantaged by operating in a low wage economy. A negative special factor is therefore still appropriate.

³ Source: PC10 Draft Determination Response – Appendix 20, Review of Northern Ireland Water's Special Factor Assessment, p12.

6.0 NDPB Status

6.1. Basis of claim

- 6.1.1 Postponement of domestic charging has resulted in NI Water being reclassified as a Non-Departmental Public Body (NDPB). The company has argued that this affects both its operational flexibility and imposes financial costs. This claim focuses only on the additional cost element.
- 6.1.2 The claim is based on the rationale that its current status requires NI Water to follow public sector rules. By default, this will impose extra costs in certain areas. For example, the company must:
- a) Follow public sector procurement rules;
 - b) Answer Assembly questions;
 - c) Deal with Freedom of Information requests; and
 - d) Complete public sector reports etc.
- 6.1.3 Governance arrangements are a political decision beyond reasonable management control. As such, the company believe a valid special factor exists.

6.2. Calculation of claim

- 6.2.1 Given their unique situation, there is little by way of comparative data to inform the materiality of the claim. For PC15, the company has reviewed public sector activities. It has then assessed the time spent on said duties to establish a full-time equivalent (FTE) valuation.

Table 6.1 – NDPB special factor claim

	FTE	Reason
Procurement		
Multiple quotations	0.5	Need to obtain quotations for low value purchases.
Business case & PPE	2.0	Must complete appraisals and evaluations to comply with DFP guidance.
Tender evaluations	0.5	Training to comply with DFP tender evaluation process.
Low value tenders	5.0	Obligation to run low value tenders for projects above £30k in value over a three-year period.
Meet with CPD	1.0	Liaise with Central Procurement Directorate.
Total	9.0	
Freedom of information and Environmental Information Regulations		
FOI unit	3.0	Dedicated team to deal with 500 FOI and EIR requests per annum.
FOI training	2.0	Training staff to deal with these requests.
Total	5.0	
Assembly questions		
Secretariat unit	2.5	Dedicated staff responsible for managing AQ's.
Staff input	1.0	Technical input from other parts of the business.
Total	3.5	
Public sector reporting		
FIS line reporting	1.5	Bespoke financial information systems reporting.
Professional guidance	1.0	Adhering to new public sector guidance from DFP.
Total	2.5	
Total	20	

- 6.2.2 The company estimate the impact to be 20 FTE staff. Given a cost per person of £50k, the result is a total claim of £1m. An additional £30k is added for a regularity audit required by DRD.

6.3. UR allowance

6.3.1 In principle, the UR is of the opinion that a special factor may exist. It was recognised in PC13 that the structure would mean extra opex (then valued at 12 FTE's). It is further understood that changing governance is not an option within NI Water control.

6.3.2 The position at the last price control was however based on a very high-level view. This claim drills down much further into the activities in question. When considered more in-depth, it is not certain that the claim is material.

6.3.3 When considering each of the duties in question, the UR would make the following points:

- a) It is recognised that extra compliance in the form of appraisals and evaluations will cost money. However, these procedures are used in the public sector as an aid to decision-making. Used properly, there should be offsetting savings.

Private sector firms also, whilst not subject to the same Green Book standards of economic appraisal, conduct business cases prior to approving material expenditure. In fact Ofwat companies often conduct Cost Benefit Analyses as the basis of informing their Business Plan submissions to Ofwat;

- b) The same point can be made for low value tenders where the exercise should help ensure a better value-for-money outcome;
- c) Whilst not specifically subject to FOI or EIR (Environmental Information Regulations) legislation, private water companies do incur cost in this area. Commenting on the tribunal ruling on this matter, James Mullock stated,

*"The water companies always strive to be open and provide information to the public where possible. They will continue to consider voluntary provision of information notwithstanding the fact that the EIR do not apply."*⁴

This suggests that NI Water costs are not fully additional; and

- d) Parliamentary questions are not specific to NI Water alone. The company estimate queries of 400 per annum. When considering this same issue in SR06, WICS obtained data on five water companies.

They found average parliamentary queries of 186 per company. This indicates a difference. However, the NI Water cost cannot be considered to be fully additional as other companies also devote resource to this area.

6.3.4 Taking these offsetting factors into account, the extra cost is likely to be less than the 20 FTE's estimated by the company.

⁴ Smartsources Drainage and Water Searches Ltd vs. The Information Commissioner

- 6.3.5 Another factor not fully explored in PC13 is potential costs incurred by WaSCs but not NI Water. The company has argued that these are limited as it still fulfils normal governance requirements.
- 6.3.6 Though difficult to accurately define, some opex will be avoided. By way of example, the lack of domestic charges means NI Water avoid the need to make guaranteed, enhanced and customer charter service standard payments. They also avoid having to supply further company returns to any parent company.
- 6.3.7 Using the most recent Ofwat data (2010), these payments amounted to £175 per 1000 population. For NI Water this could be an avoided cost of up to £300k. Such payments aren't certain as they are linked to performance but they do illustrate the potential for differences.
- 6.3.8 Given such offsetting factors to NI Water's valuation and the uncertainty around the quantum of avoided costs, the UR has made no allowance. This is based on the view that the claim, whilst valid, falls below the materiality threshold and fails to meet our acceptance criteria.

6.4. Consultation response

- 6.4.1 NI Water disputed the lack of a special factor allowance in the draft determination. A number of issues were raised. These are set out in the table below with an accompanying response.

Table 6.2 – NDPB issues raised by NI Water

Issues and Responses
<u>Issue 1</u> - Specific examples of avoided costs (e.g. guaranteed standard payments) are related to the business activity function. These are excluded from the efficiency analysis so are irrelevant.
<u>Response 1</u> – The UR agrees, but cited the issue by way of an example of how NDPB status could be beneficial. Other areas where NI Water may have a comparative advantage (e.g. executive/bonus pay restraint) due to public body status would impact on the efficiency analysis.
<u>Issue 2</u> – Potential savings from public sector procurement are outweighed by the cost.
<u>Response 2</u> – This point is also agreed. The fact that some savings will arise does however moderate against allowing the full amount claimed.
<u>Issue 3</u> – NI Water has legal responsibilities to comply with FOI/EIR requests, which are neither binding nor mirrored by other companies. Even though companies may try to be transparent, this should not be interpreted as undertaking a legal responsibility to adhere to the full rigours of FOI/EIR legislation.
<u>Response 3</u> – It is not claimed that comparative companies have the same legal responsibilities as NI Water. However, it is clear that they do incur costs in this area. In fact in both the legal cases pertaining to this issue (Smartsourc and Fish Legal), companies in question both received and voluntarily responded to information requests,

either in part or fully.

Whilst not duty bound, the evidence indicates that other companies dedicate resources to such data requests. How rigorous responses are is unknown and likely to vary from company-to-company. What is evident is that the NI Water claim cannot be considered wholly additional as it is an industry wide issue.

Issue 4 – The total number of assembly questions answered is the relevant statistic for assessing the burden of political enquiries. The number of queries per parliamentarian is not relevant.

Response 4 – The Regulator agrees with this point and has amended the text to reflect this. However, the critical point remains that WaSC's in England and Wales face the same political interest as NI Water.

Issue 5 – The determination makes no mention of staff required to undertake public sector reporting.

Response 5 – The Utility Regulator agrees that these costs are company specific and unavoidable but whether they are completely additional remains questionable.

6.4.2 The UR is not inclined to change the special factor allowance for NDPB status. Whilst it is accepted that extra cost will be incurred, the materiality of this is doubtful.

6.4.3 This view is based on the fact that:

- There is likely to be offsetting benefits to public body status;
- Savings can accrue from public sector procurement processes; and
- The wider UK water industry must perform many of the same functions as a public body, albeit to a lesser extent. Opex costs are therefore not unique to NI Water.

6.4.4 On the basis of this detail, the claim is deemed not to be material.

7.0 Sewer Network

7.1. Basis of claim

- 7.1.1 This claim relates to the performance of the sewer network. The company provides data illustrating a big disparity between England and Wales and themselves in certain metrics.
- 7.1.2 When looking at sewer blockages, collapses and rising main failures, it is clear that NI Water lags behind.

Table 7.1 – Network performance in 2012-13⁵

Metric	NI Water	E&W Average
Sewer blockages (Nr/000 km)	1,364	966
Sewer collapses (Nr/000 km)	71	16
Rising main failures (Nr/000 km)	2.7	1.9

- 7.1.3 Poor performance is attributed to a legacy of 15-20 years of under investment in small diameter sewers. The company argue that capital budget restrictions have played a part in this. Given recent focus on water quality targets, the combined result is a lack of sewer network investment.
- 7.1.4 The consequence of a badly performing network is higher levels of opex dedicated to reactive maintenance.

7.2. Calculation of claim

- 7.2.1 Costs associated with sewer network issues are provided below.

⁵ Figures calculated for E&W are taken from the PR14 August submission. The data relates to total failure rates per network length (excluding lateral drains).

Table 7.2 – Network activity and cost in 2012-13

Metric		2012-13 Total
Sewer blockages	Nr	20,810
	£m	1.54
Desilting	Metres	304,187
	£m	0.85
CCTV Survey	Metres	17,438
	£m	0.05
Sewer and manhole repairs	Nr	936
	£m	1.19
Emergency tankering	Nr	697
	£m	0.24
Total	£m	3.88

Figures may not sum due to rounding

- 7.2.2 Of the £3.9m opex, the company only has comparable activity data for sewer blockages and manhole repairs where it can say with certainty that performance differences exist. Taking this value (£2.7m), NI Water has used an estimate in the region of 40%, giving a special factor of £1.1m.

7.3. UR allowance

- 7.3.1 The company demonstrates that there is a gap in the number of network issues. This fact is accepted by the UR. However, it has failed to provide any financial data linking this with a lack of capital investment.
- 7.3.2 It is not clear whether absolute capital budgets were restricted compared to England and Wales. It is also unknown if the impact could have been mitigated by more efficient capital spending (which is within the control of Water Service / NI Water managers).
- 7.3.3 The absence of any financial data supporting NI Water's position is a problem. The UR cannot assume that a special factor for legacy investment is certain or even the key factor in network under performance.
- 7.3.4 How then can the performance gap be explained? The mostly likely influence is lateral drains and private sewers. NI Water has always had responsibility for these assets. Companies in England and Wales only adopted them in October 2011.
- 7.3.5 Since then, latest data suggests that the gap is closing. Whilst NI Water is steadily improving, the England and Wales position is getting worse as they deal with formerly private sewer issues.

Figure 7.1 – Sewer blockages

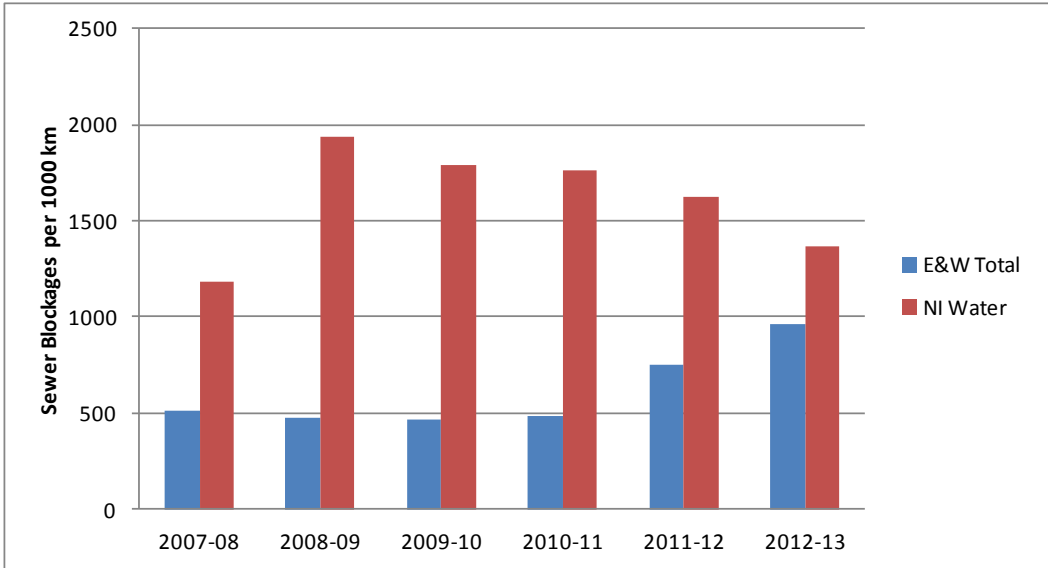
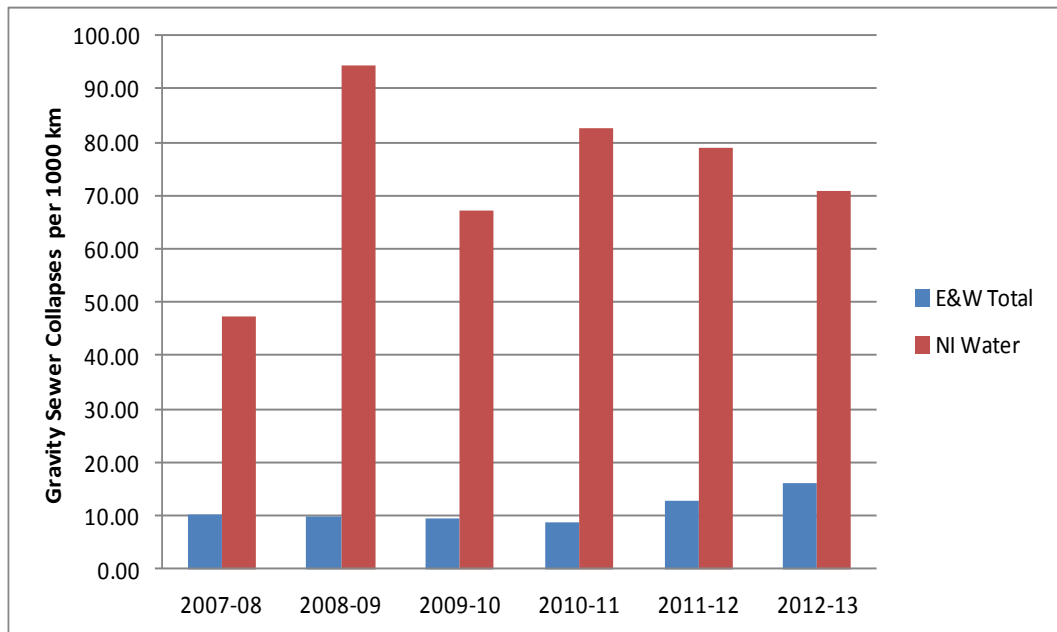


Figure 7.2 – Rising main failures



Figure 7.3 – Sewer collapses

- 7.3.6 It should be noted that the graphs for NI Water and England and Wales include the private sewer failures but not the additional sewer lengths. The reason is uncertainty around these values.
- 7.3.7 When compared against England and Wales, the impact of lateral drains and private sewer length is markedly different. Including sewer laterals increases the 'ordinary' network size of NI Water by 14%. For England and Wales, the average increase is 66%.
- 7.3.8 On a length per property basis, the lateral drains in England and Wales are 9.4m long. For Northern Ireland, the comparable figure is 3.5m per billed property. The gap is even greater when compared to rural companies.
- 7.3.9 NI Water queried why sewer lateral lengths should be excluded from the graphs. The company also noted correctly that their inclusion would continue to show a large gap in performance.
- 7.3.10 The UR believes that the uncertain nature of the sewer lateral length places a question mark on including these figures. It is by no means clear why Northern Ireland should be such an outlier in this regard.
- 7.3.11 Until the lateral lengths can be confirmed, the UR has benchmarked using the 'ordinary' sewer network length. If the difference in lateral lengths is established, this may have an impact on future efficiency analysis.
- 7.3.12 It may further indicate the presence of a negative special factor. Should NI Water be responsible for much smaller lateral lengths, it would be expected that they will also benefit from lower costs.
- 7.3.13 Collapses aside, the graphs provided do however suggest that the gap is falling now that responsibilities are aligned.

- 7.3.14 Ofwat companies provide detail on the opex incurred because of the private sewer transfer. On average, this amounts to £2.40 per property.
- 7.3.15 This suggests that a sewer network special factor did exist, and should have been accounted for, prior to 2011. As the UR incorporates updated costs in its comparisons with England and Wales, this is not considered an issue for PC15.
- 7.3.16 As regards the under-investment claim, the company has failed to evidence this properly. No allowance has therefore been made.

8.0 Wastewater Treatment

8.1. Basis of claim

- 8.1.1 The final special factor claim relates to wastewater treatment costs. The topography of Northern Ireland results in a number of works discharging to sensitive river basins. The outcome of this has been a number of tight environmental consents being set by NIEA.
- 8.1.2 In order to achieve these standards, Water Service (prior to NI Water) decided to introduce specialist technology. The refined process was developed at 17 locations (primarily during the period 2004-08).
- 8.1.3 At a time when Northern Ireland performance was lagging behind, the process also provided the added benefit of:
- Operating within a small footprint where land was restricted; and
 - Being relatively quick to construct.
- 8.1.4 The process is recognised to produce high quality effluent. However, NI Water contends that the opex cost is much greater than conventional treatment. The plant is energy intensive. The technology further requires significant upkeep. This includes chemical and physical cleaning on a regular basis.
- 8.1.5 NI Water has shown that this technology is not widely used amongst comparators. The company is of the opinion that it *“is only a process that would be considered in exception circumstances.”*
- 8.1.6 NI Water therefore believes that a special factor allowance should be provided to cover the extra running cost of operating this plant.

8.2. Calculation of claim

- 8.2.1 The company has compared the plants to works of a similar size. This is important as there is clear evidence of scale economies in sewage treatment. There is also quite a large variation in the size of these specialist works.
- 8.2.2 In order to make the comparison fair, comparator works have also been chosen based on relatively tight consents.
- 8.2.3 A cost per population figure has been calculated at each of the works. These are then compared to the unit cost of the comparator. The difference is adjudged to be the special factor.
- 8.2.4 The result is a claim as follows:

Table 8.1 – Wastewater treatment special factor claim

Specialist Works Name	Population Equivalent (P.E)	Special Works Opex/PE (£/person)	Comparator Works (£/person)	Unit Cost Variance (£/person)	Special Factor Claim (£)
Ballynadolly	141	236.62	44.15	192.48	27,139
Grange	565	188.49	24.82	163.67	92,472
Loughguile	854	73.05	49.96	23.09	19,718
Pomeroy	979	54.88	36.89	17.99	17,611
Greyabbey	1,036	90.58	36.89	53.69	55,619
Aghalee	1,111	79.40	37.84	41.56	46,177
Aghagallon	1,291	66.83	23.49	43.34	55,949
Kircubbin	1,361	76.21	23.49	52.72	71,751
Dunloy	1,424	75.83	23.49	52.33	74,519
Moneyreagh	2,380	132.58	31.61	100.97	240,315
Drumaness	2,609	108.57	31.61	76.96	200,795
Dundrum	2,613	61.96	31.61	30.35	79,307
Irvinestown	2,669	54.80	31.61	23.19	61,902
Rathfriland	3,977	53.28	11.90	41.38	164,556
Dromore	7,355	55.11	26.35	28.76	211,553
Tandragee	13,659	21.66	11.44	10.23	139,664
Ballyclare	16,488	27.32	8.74	18.57	306,216
Total	60,512				£1.87m

Figures may not sum due to rounding

- 8.2.5 The table illustrates the unit cost difference between specialist and conventional works. The variance multiplied by the p.e. gives the special factor. Across the 17 works the impact on costs is an additional £1.87m.

8.3. UR allowance

- 8.3.1 It is accepted that this specialist plant is not widely used in England and Wales. The NI Water data further illustrates that it is a more costly alternative, albeit with a better quality effluent.
- 8.3.2 The case for a special factor is however uncertain. NI Water has not proven that its circumstances are unique. Indeed it is likely that other companies have sensitive watercourses which attract tough consents.

- 8.3.3 Moreover, the choice of treatment method is usually at the discretion of the company. This variable is generally within management control and as such, should not qualify as a special factor.
- 8.3.4 For this particular issue, the UR has decided to make an exception. The rationale is based on what may be termed a 'legacy' issue.
- 8.3.5 The decision to implement the technology was taken prior to NI Water being formed. In this respect, the initial choice was outside NI Water management control. At least in the short-term, the company must live with the consequences.
- 8.3.6 The UR does expect this factor to reduce and eventually disappear as different capital solutions are employed. Some such schemes are already planned for PC15. This should help mitigate the continuing special factor impact from such technology.
- 8.3.7 The decision does not mean that legacy decisions should always be subject to special factors. In this case, there is however an ongoing impact which needs to be accounted for.
- 8.3.8 Since a case for the special factor has been established, the issue then is the quantum allowed. The Regulator has some concerns with the comparators. It is unknown if they represent average industry costs. In the absence of any better detail, they have been accepted.
- 8.3.9 Secondly, unit cost figures for WwTW's include service charges. This should not form part of the claim as these are removed from the relative efficiency analysis.
- 8.3.10 The main concern focuses on the works themselves. Across the 17 sites there is considerable variability in unit costs. Whilst some special factor may be appropriate, allowance should not be made for plant that is operating inefficiently.
- 8.3.11 This appears to be the case for a number of works including:
- a) Grange – Where total opex costs are nearly double that of Pomeroy yet is roughly half the size;
 - b) Moneyreagh and Drumaness – Who have unit costs twice that of similar sized specialist works;
 - c) Dromore – Where treatment costs exceed £0.4m; and
 - d) Ballyclare – Where unit costs are much higher than the comparable works in Tandragee, in spite of serving a larger population.
- 8.3.12 NI Water provided detail on some of these works but stressed that each faced different circumstances. This is understood, but the scale of the difference remains unexplained.
- 8.3.13 The Regulator agrees with NI Water that it is unreasonable to exclude works from the analysis. However, it is not appropriate to grant the full allowance where concerns remain that costs have not been fully mitigated.

8.3.14 For the works mentioned above, the UR has allocated a unit cost equal to other specialist plants. This helps to ensure that undue account is not being given to inefficient plant. Results are as follows:

Table 8.2 – Wastewater treatment special factor allowance

Specialist Works Name	Population Equivalent (P.E)	Special Works Opex/PE (£/person)	Comparator Works (£/person)	Unit Cost Variance (£/person)	Special Factor Claim (£)
Ballynadolly	141	225.4	42.7	182.7	25,755
Grange	565	72.2	23.5	48.6	27,483
Loughguile	854	72.2	48.6	23.6	20,135
Pomeroy	979	53.6	35.8	17.8	17,426
Greyabbey	1,036	89.6	35.8	53.8	55,785
Aghalee	1,111	77.3	36.6	40.7	45,247
Aghagallon	1,291	65.4	22.3	43.2	55,721
Kircubbin	1,361	75.6	22.3	53.4	72,620
Dunloy	1,424	74.9	22.3	52.7	74,977
Moneyreagh	2,380	60.9	30.4	30.5	72,547
Drumaness	2,609	60.9	30.4	30.5	79,527
Dundrum	2,613	60.9	30.4	30.5	79,649
Irvinestown	2,669	53.6	30.4	23.2	61,988
Rathfriland	3,977	51.9	11.9	40.0	159,274
Dromore	7,355	36.5	25.7	10.8	79,433
Tandragee	13,659	21.0	11.3	9.7	132,749
Ballyclare	16,488	21.0	8.6	12.4	204,390
Total	60,512				£1.26m

Figures may not sum due to rounding

8.3.15 The table shows the works with amended unit costs highlighted in yellow. Dromore reflects an average of Rathfriland and Tandragee. The approach results in an allowance of £1.26m (68%).

9.0 Conclusions

9.1. Summary

- 9.1.1 The UR has considered the evidence and concluded an allowance around 53% of the amount claimed.

Table 9.1 – Special factors – claimed versus allowed

Special Factor Claim	NI Water Claimed	UR Allowed
Rural Network (Sewage)	£4.02m	£2.81m
Sludge Disposal	£0.69m	£0.00m
Electricity Prices	£5.30m	£4.73m
Regional Wages	-£1.20m	-£2.02m
NDPB Status	£1.03m	£0.00m
Sewerage Network Under-Investment	£1.09m	£0.00m
Wastewater Treatment	£1.87m	£1.26m
Total	£12.80m	£6.78m

Figures may not sum due to rounding

- 9.1.2 Further work will be required in the future as circumstances change and modelling is amended. This allowance is in some respects unique, as the UR has made an adjustment without evidence of comparator companies.
- 9.1.3 The UR is of the opinion that the determination takes full account of the detail submitted.